

We claim:

1. Apparatus for loading a substrate onto a processing surface in a thin-film processing chamber, the apparatus comprising a support which cooperates with one or more corresponding apertures in the processing surface so as to be movable between an extended position in which the support can support a substrate above the processing surface, and a retracted position in which the support is flush with or located below the processing surface, wherein the support comprises a number of limbs extending radially outwardly from a central hub, at an angle relative to the processing surface, the limbs being configured to contact the edges of different sized substrates in use so as to support the substrate in a support plane substantially parallel to the processing surface, the support plane being provided above the central hub.

2. Apparatus according to claim 1, wherein each limb defines a continuous support surface extending at an angle relative to the processing surface, each support surface contacting the edges of different sized substrates in use.

3. Apparatus according to claim 1, the apparatus further comprising a loading arm having a mounting which receives a substrate in use, the loading arm being movable between a retracted position and an extended position in which the mounting and the support cooperate such that, in use, motion of the support to the extended position causes the substrate to be supported by the support, thereby removing the substrate from the mounting.

4. Apparatus according to claim 3, wherein the mounting is located outside the chamber when the loading arm is in the retracted position.

5. Apparatus according to claim 3, wherein the mounting comprises a number of mounting elements extending radially outwardly from a central portion, each mounting element defining a number of mounting surfaces, and each mounting surface being associated with a respective mounting plane.

doesn't necessarily mean more than one

SP A

SP B  
(fig 14)

6. Apparatus according to claim 3, the apparatus further comprising a drive means for controllably moving the loading arm between the extended and retracted positions.

5 7. Apparatus according to claim 1, the apparatus further comprising an actuator for controllably moving the support between the extended and retracted positions.

8. Apparatus according to claim 1, the apparatus further comprising a clamp movable between an open position and a clamping position for clamping the substrate to the processing surface.

9. Apparatus according to claim 8, wherein the clamp comprises an annular clamping element extending radially inwardly from an outer clamping ring, the clamping ring being positioned radially outwardly from the processing surface.

10. Apparatus according to claim 9, the apparatus further comprising a clamp actuator for moving the clamp between the open and clamping positions, the clamping ring being removably mounted to the clamp actuator.

11. Apparatus according to claim 4, the apparatus further comprising a controller for controllably moving the support and the loading arm between their respective retracted and extended positions.

12. Apparatus according to claim 1, further comprising a loading assembly having a mounting which receives a substrate in use, the loading assembly being movable between a retracted position in which the mounting is outside the processing system chamber and an extended position in which the mounting is inside the processing system chamber, and wherein the mounting comprises a number

of mounting elements extending substantially radially outwardly from a central position, each mounting element defining a number of mounting surfaces, and each mounting surface being associated with a respective mounting plane, and wherein the mounting and the support cooperate such that, in use, with the loading assembly in the extended position, motion of the support to the extended position

SPB, D

B2 10

SP D

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N/A

SPB  
(fig 14)

causes the substrate to be supported by the support, thereby removing the substrate from the mounting.

13. Apparatus according to claim 12, wherein each mounting plane is adapted to be used when loading a respective size of substrate.

14. Apparatus according to claim 12, wherein each mounting plane is adapted to be used when loading a respective size of substrate, and wherein the mounting is adapted such that in use a substrate positioned on the mounting in the respective mounting plane will be located substantially over the centre of the processing surface when the loading assembly is in the extended position.

15. Apparatus according to claim 12, wherein the apparatus further comprising a drive means for controllably moving the loading arm between the extended and retracted positions.

16. Apparatus according to claim 12, wherein the loading assembly comprises a carriage; first drive means for driving the carriage with respect to a base; and second drive means which moves with the carriage and cooperates with the base whereby the relative movement between the carriage and the base causes the second drive means to drive the mounting with respect to the carriage.

17. Apparatus according to claim 16, wherein the carriage is slidably mounted to the base and the mounting is slidably mounted to the carriage.

18. A thin film processing system comprising one or more processing chambers in which substrates are processed, and apparatus according to claim 1 for loading the substrates.

19. A system according to claim 18, wherein the system is a plasma processing system for treatment of semiconductor wafers.